



Tracing water exchange and circulation in the Antarctic using 129I

Hou, Xiaolin; Xing, Shan; Aldahan, Ala; Goran, Possernet; Weijian, Zhou

Publication date:
2017

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):

Hou, X., Xing, S., Aldahan, A., Goran, P., & Weijian, Z. (2017). *Tracing water exchange and circulation in the Antarctic using 129I*. Abstract from 14th International Conference on Accelerator Mass Spectrometry, Ottawa, Canada.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Tracing water exchange and circulation in the Antarctic using ^{129}I

Due to the conservative feature of iodine in the ocean, the high releases from the human nuclear activities and long half-life, ^{129}I has been widely used as an oceanographic tracer for water circulation and exchange in many regions. But the distribution of ^{129}I in seawater in the Antarctic has not yet been reported. The surface and depth profile seawater collected from the Drake Passage, Bellingshausen, Amundsen, and Ross Seas in the Antarctic in Nov. 2010 - Jan. 2011 were analyzed for total ^{129}I and ^{127}I . The concentrations $(1.15\text{-}3.27)\text{E}6$ atoms/L for ^{129}I and $(0.61\text{-}1.98)\text{E-}11$ for $^{129}\text{I}/^{127}\text{I}$ atomic ratios are lowest compared to the other oceans. The iodine distribution patterns provide significant information about surface water transport and mixing that are vital for the better understanding of the Southern Oceans effects on the global climate change. The results indicate multiple spatial interaction between the Antarctic Circumpolar Current (ACC) and Antarctic Peninsula Coastal Current (APCC). These interactions happen in restricted circulation pathways that may partly relate to glacial melting and icebergs transport.

HOU, Xiaolin (Technical University of Denmark); Dr. XING, Shan (Xi'an AMS Center, Institute of Earth Environment, Chinese Academy of Science); Prof. ALA, Aldahan (Department of Geology, United Arab Emirates University, Al Ain, United Arab Emirates); Prof. GORAN, Possner (Tandem Laboratory, Uppsala University, Uppsala 75120, Sweden); Prof. WEIJIAN, Zhou (State Key Laboratory of Loess and Quaternary Geology, Shaanxi Key Laboratory of Accelerator Mass Spectrometry Technology and Application, Xi'an AMS Center, Institute of Earth Environment, Chinese Academy of Sciences, Xi'an 710061, China)
